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Availability and Competence of Technical and Inspection Personnel in Civil Aviation Administrations



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Director, Air Navigation Bureau
International Civil Aviation Organization (ICAO)

Council Informal Briefing
6 October 2017



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TRAINING REQUIREMENTS FOR SERVICE PROVIDERS



TRAINING REQUIREMENTS FOR CIVIL AVIATION ADMINISTRATIONS





Required Training for *Service Providers*

- **Several ICAO Annexes mandate training for aviation professionals:**
 - Pilots
 - Controllers
 - Aircraft maintenance personnel
 - Cabin crew
 - MET personnel
 - Rescue and firefighting personnel
 - Personnel involved with AIS functions
 - Personnel involved in the transport of DG by air
 - Personnel in approval of training organizations
- **Other ICAO Docs contain provisions related to training:**
 - PANS-OPS (8168)
 - PANS-TRG (9868),
 - PANS-AERO (9981)
 - Technical Instructions for DG (9284)
 - Manual on Competencies of Civil Aviation Safety Inspectors (10070)



Required Training for *CAA technical personnel*

- **Qualified technical personnel (CE-4) is one of the 8 critical elements of an effective safety oversight system**
 - ICAO USOAP CMA Protocol Questions address EI of CE-4 (*108 PQs*)
- **Doc 9734 Part A contains guidance on:**
 - Staffing requirements
 - Qualification of technical personnel
 - Training of technical personnel, including:
 - Minimum professional qualifications for personnel performing safety oversight
 - Training necessary to effectively accomplish duties and responsibilities
 - Periodic training and refresher courses



Required Training for *CAA technical personnel* (continued)

- **Annex 19 requirement:**

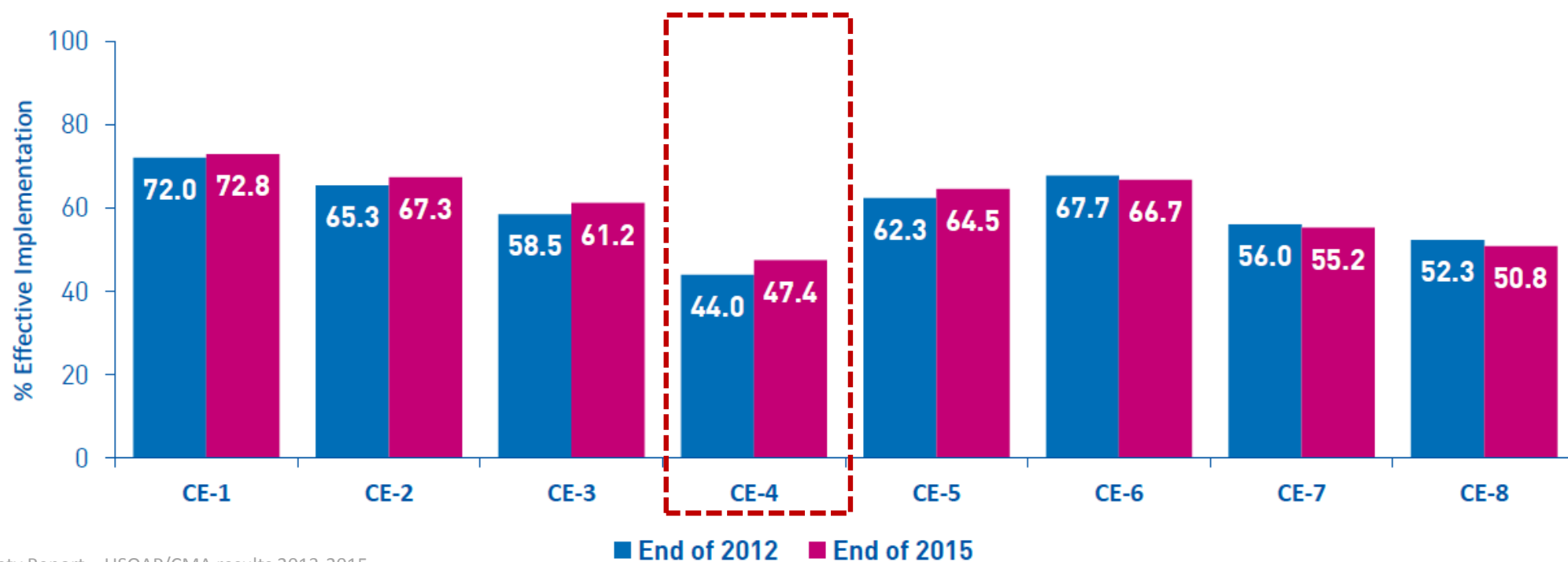
“The State shall establish minimum qualification requirements for the technical personnel performing safety oversight functions and provide for appropriate initial and recurrent training to maintain and enhance their competence at the desired level.”

- **SARPs do not specifically address detailed staffing and training requirements** within State civil aviation system



ICAO USOAP CMA Report

EI by CE (end of 2012 vs end of 2015)





ICAO USOAP CMA Report *(continued)*

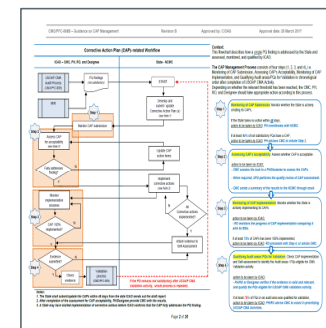
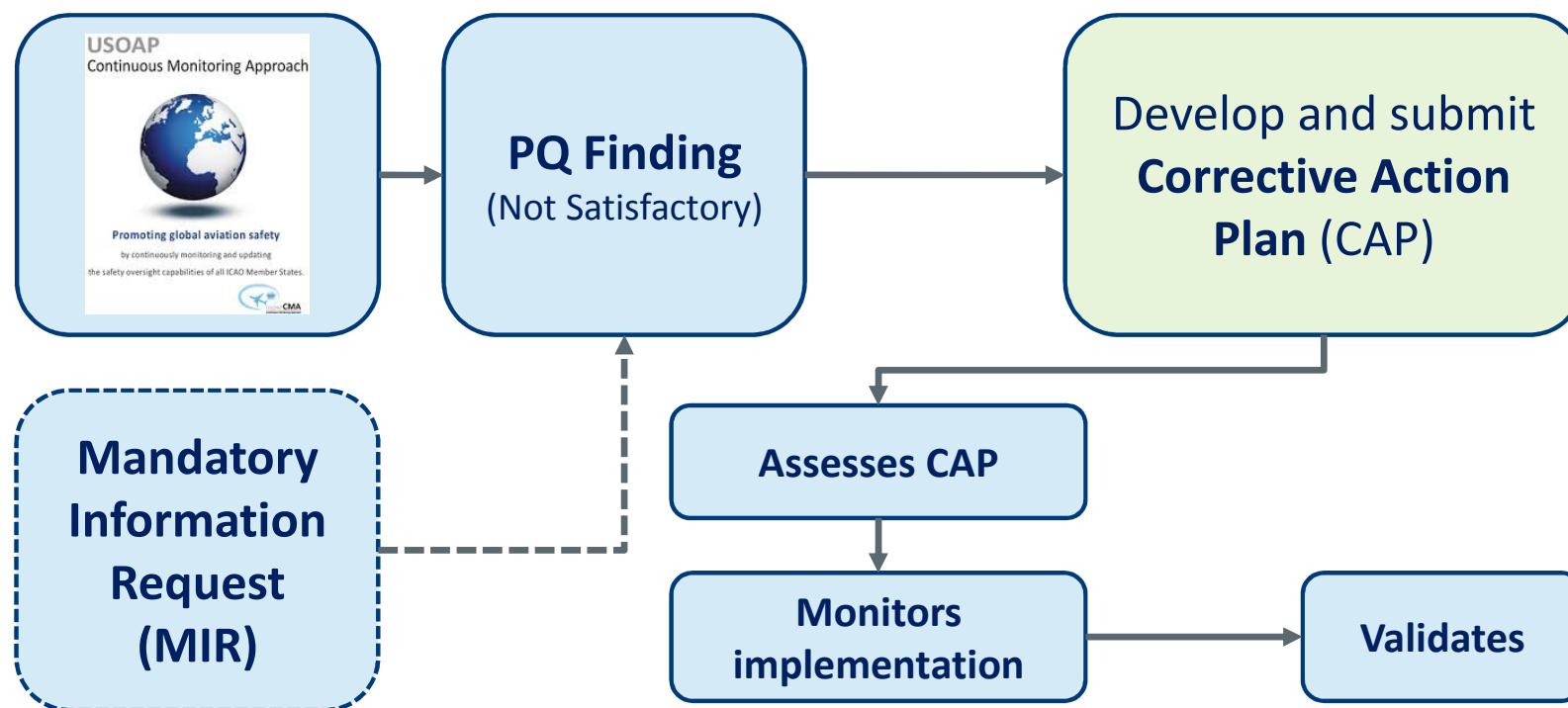
As of end 2015, CE-4 remains the CE with the lowest EI rate at global level.

The low EI results from a number of factors:

- **a deterioration of the safety oversight system was observed in some States, where the system established showed not to be sufficiently sustainable.**
 - States had not been able to retain some of its qualified and experienced technical staff.
- **some States had gone through periods of instability**
 - This has impacted the system established within the CAA.
- **some States had seen a significant increase of their level of aviation activity**
 - CAA not being sufficiently staffed to effectively perform all necessary additional certification, surveillance and enforcement activities.

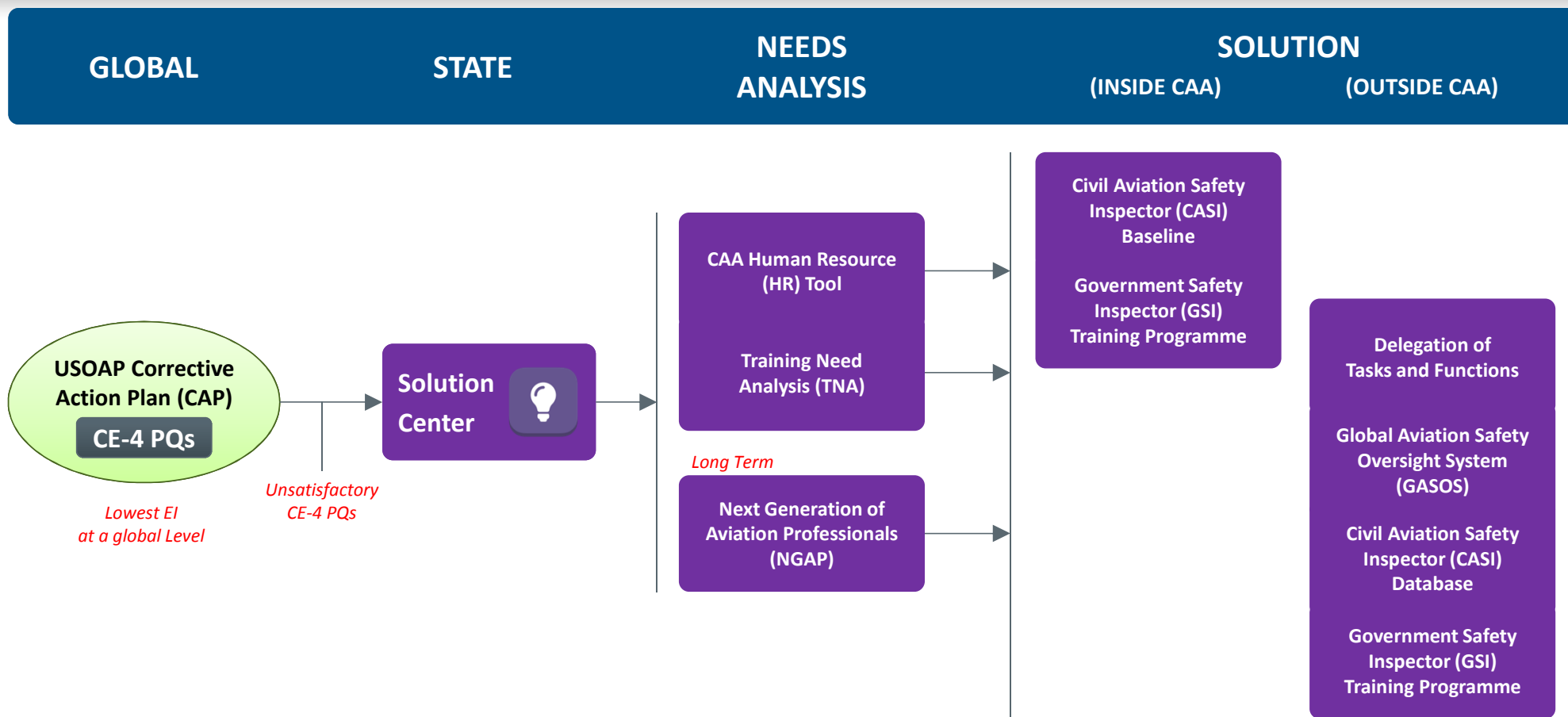


USOAP Process



Timeline of Post-audit Activities

RESPONSIBILITIES/TASKS	TIMELINE BY ACTIVITY (days noted below are calendar days)			
	ICAO	State	ICAO	ICAO
After completion of onsite activity				
Written notification of SIC to State			15 days after last day of onsite activity	
Providing draft report to State			90 days after last day of onsite activity	
Publication of final report			45 days from receipt of draft report	
Validation of final report			30 days from receipt of State comments	
Submission of CAPs			Additional days as required	
			45 days from posting of PQ Findings online or notification through final report	



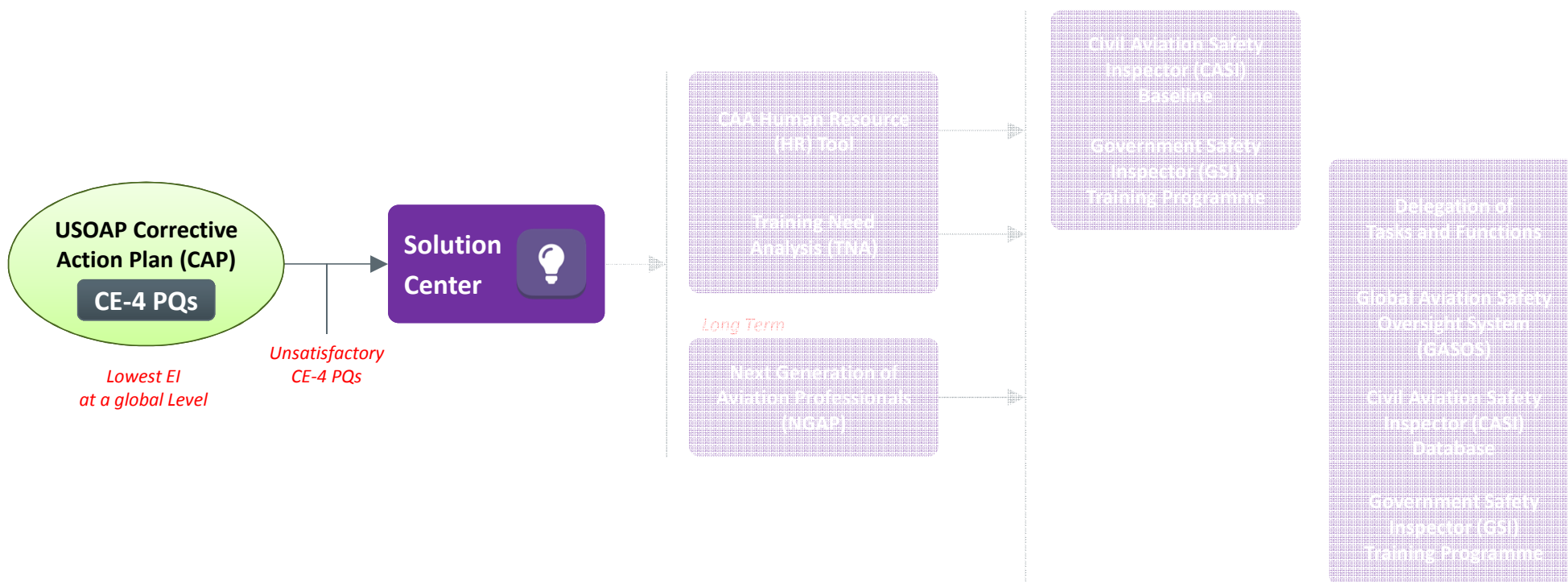


GLOBAL

STATE

NEEDS
ANALYSIS

SOLUTION
(INSIDE CAA) (OUTSIDE CAA)





Solution Center

Provides guidance and solutions against each deficiency as identified through USOAP CMA

The 'Solution Center' provides the following:

- Reference to the specific PQ
- Associated ICAO documentation
- **Best practices by other States and Industries**
- Regional and global initiatives
- **Available training**
- **Software tools**
- References to States that have resolved the PQ

ALL	LEG	ORG	AIG	PEL	OPS	AIR	ANS	AGA
CE-1	6		5					
CE-2	5		9	1	3	12	3	11
CE-3		3	5				2	
CE-4		1	4			5	8	3
CE-5	1	1	35	1	1	4	2	5
CE-6				3	2	3	11	22
CE-7						1	10	11
CE-8			12			2	6	4
Safety Margin	-25.21%			+10.75%			+0.74%	



Source: iSTARS 3.0 – Solution Center (<https://portal.icao.int/space>)



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Catalogue

List of Available iSTARS Applications

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Icon

Name/Category

Description

Search:

Installed



Solution Center
Report on Protocol Questions Findings and Guidance for Resolutions

Guidance to support the drafting of corrective action plans for protocol questions findings. This beta version is continuing to be developed (preview version).

[To My Apps](#)

Training

Programs available in your region

- IATA Operational Safety Audit (IOSA)** by IATA for States in World
The IATA Operational Safety Audit (IOSA) program is an evaluation system designed to assess the operational management and control systems of an airline. All IATA members are IOSA registered and must remain registered to maintain IATA membership.
- Next Generation Air Transportation System (NextGen)** by FAA for States in Northern America
New National Airspace System due for implementation across the United States in stages between 2012 and 2025. NextGen proposes to transform America's air traffic control system from a radar-based system with radio communication to a satellite-based one.
- AIRE - Atlantic Interoperability Initiative to Reduce Emissions** by EU - United States for States in World
Coordinate to major programmes on Air Traffic Management (ATM) infrastructure modernisation, SESAR in Europe and NEXTGEN in the United States. AIRE is the first large-scale environmental initiative bringing together aviation players from both sides of the Atlantic. So far, three AIRE cycles have been successfully completed.
- Civil Aviation Security (CASE) project** by European Commission for States in World
Aims at organising capacity building in the field of civil aviation and security in Africa and the Arabian Peninsula. The European Civil Aviation Conference (ECAC) is in charge of its implementation over the course of four years (2016-2020) by providing targeted technical assistance to the beneficiary States.
- Aireon** by Iridium Communications, NAV CANADA, the Irish Aviation Authority for States in World
The purpose of Aireon is to expand air traffic surveillance to the entire planet by installing ADS-B receivers on aircraft.

Available Training

- Safety management Training Programme** by Trainair Plus
- IOSA Airline Auditor Training (Classroom, 5 days)**
- ISAGO for Auditors (Classroom, 4 days)** by IATA
- Regulatory Standards Training** by FAA
- Air Traffic Services - Operations** by Singapore Aviation Academy
- Aviation Safety & Security - Safety Management** by Singapore Aviation Academy
- Aviation Management - Airport Operations & Management** by Singapore Aviation Academy
- Aerodromes, Ground Operations (AGO)** by JAA Training Organisation
- Airport Planning, Operations and Management Training Courses** by IATA
- Aviation Safety Training Courses** by IATA
- Cargo Training Courses** by IATA
- Airline Operations, Quality and Audit Training Courses** by IATA
- Auditing, Inspection, Investigation (AII)** by JAA Training Organisation
- Operations (Ops)** by JAA Training Organisation
- EASA Learning Getaway (ELG)** by EASA
- Aviation Training Courses** by CAA International
- HOP1-TRAINING** by ICARE
- FlightSafety Academy** by FlightSafety International

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ICAO / Global Aviation Training / TRAINAIR PLUS / STP Standardized Training Packages / List of STPs

News and Events

Latest News

Events

Membership

About TRAINAIR PLUS

Operations Manual (TPOM)

Procedure

Membership requirements

Applying to the TRAINAIR PLUS Programme

TPP Current Members

Assessment

Training Assessment Guidelines

Assessment Schedule

Budget

STP Standardized Training Packages

List of STPs

TRAINAIR PLUS

State

Training Center

Language

Code

Title

Icon

Category : STP Standardized Training Packages Under Development (1)

Singapore	Singapore Aviation Academy (SAA)	English	201/146/SMS HIRM	Operational Hazard Identification and Risk Mitigation	
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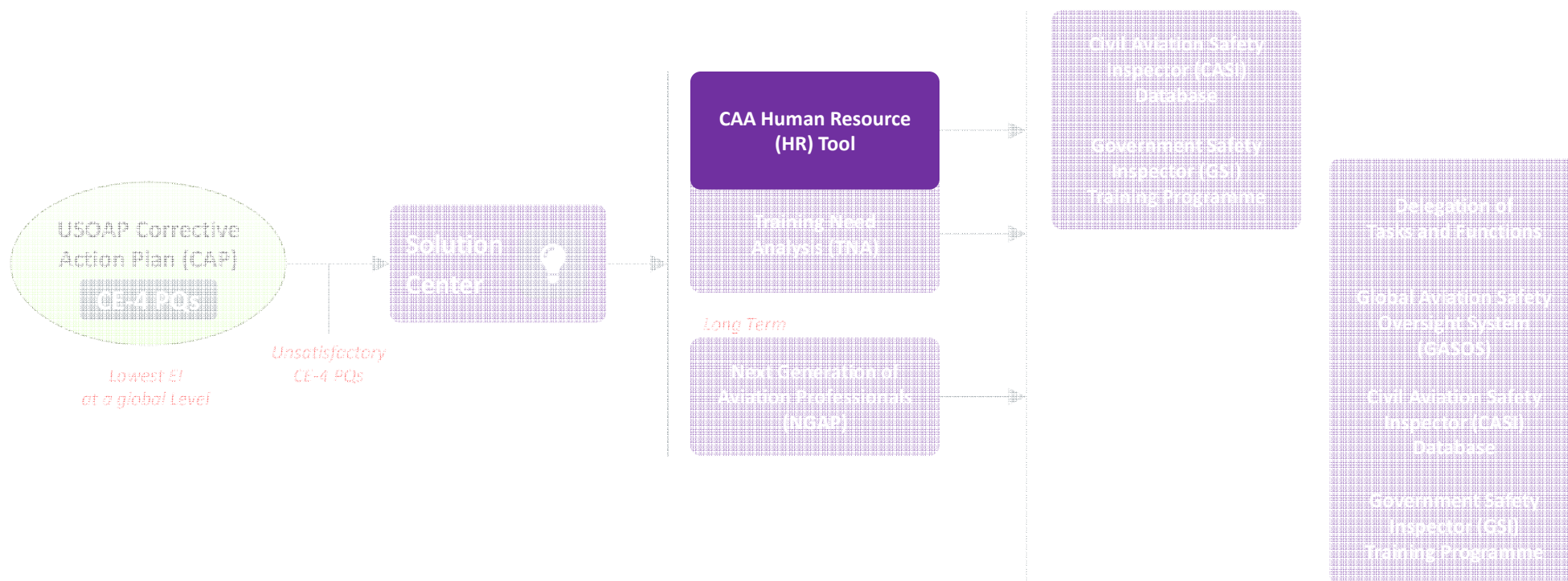


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CAA Human Resource Tool

- States have asked for guidance on resourcing and structuring of a CAA
- Needs also expressed by DGs attending DGCA course
- USOAP audits found that States don't have methodology to determine staffing needs
- Working Group formed, sponsored by DD/Safety



Tool



Benchmarking

For States to get a sense of the number of inspectors, based on benchmark with peers

Tool



Manpower Planning

Tool that States can use to calculate manpower needs

Information



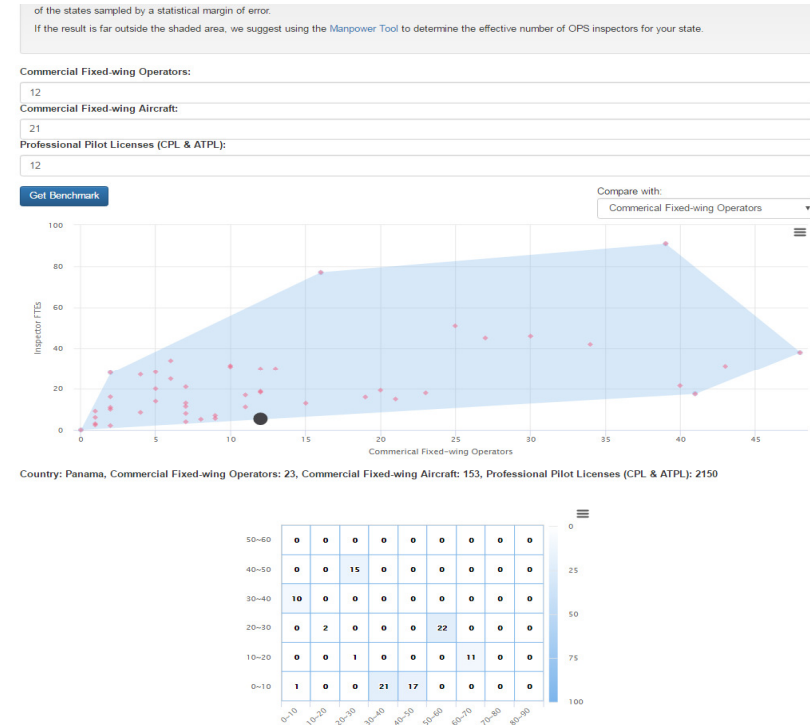
Organizational Structure Guidance

Different approaches to safety and sharing of best practices



Benchmarking Tool

- Provides a starting point with raw data
- Allows States to compare their number of inspectors with the number of inspectors of other States





Manpower Planning Tool

- Calculates man-hours and number of inspectors (OPS, AIR, PEL, AGA, ANS) needed
- Includes a basic risk-based approach to surveillance





Org Structure Case Studies

- Designed to help States enhance the way they organize their **civil aviation authority** commensurate to the size and scope of their aviation industry
- Provides a list of **case studies** of selected CAAs and their structures to help States with:
 - Identifying factors to consider when designing a CAA and safety oversight system
 - Evaluating options for the management of resource load: **internal resourcing, designation, delegation, outsourcing, etc.**



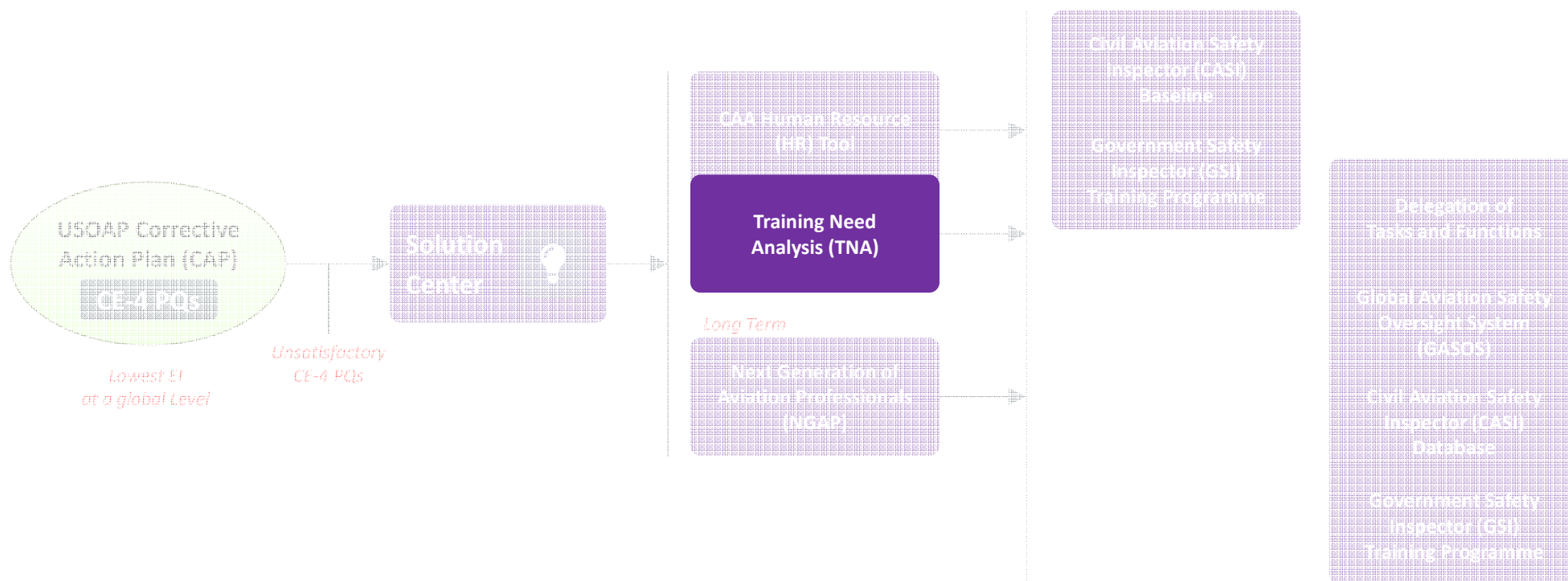


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ICAO Training Needs Analysis (TNA)

- **Building capacity through human performance improvement**
 - provides aviation organizations with help identifying and addressing human performance improvement needs through training and development
- **Purpose**
 - guide users through the process of assessing their needs for training. It reflects a proven approach to Training Needs Analysis (TNA) that has been validated through practical field work

Training Needs Analysis



ICAO Training Needs Analysis

Building capacity through human performance improvement

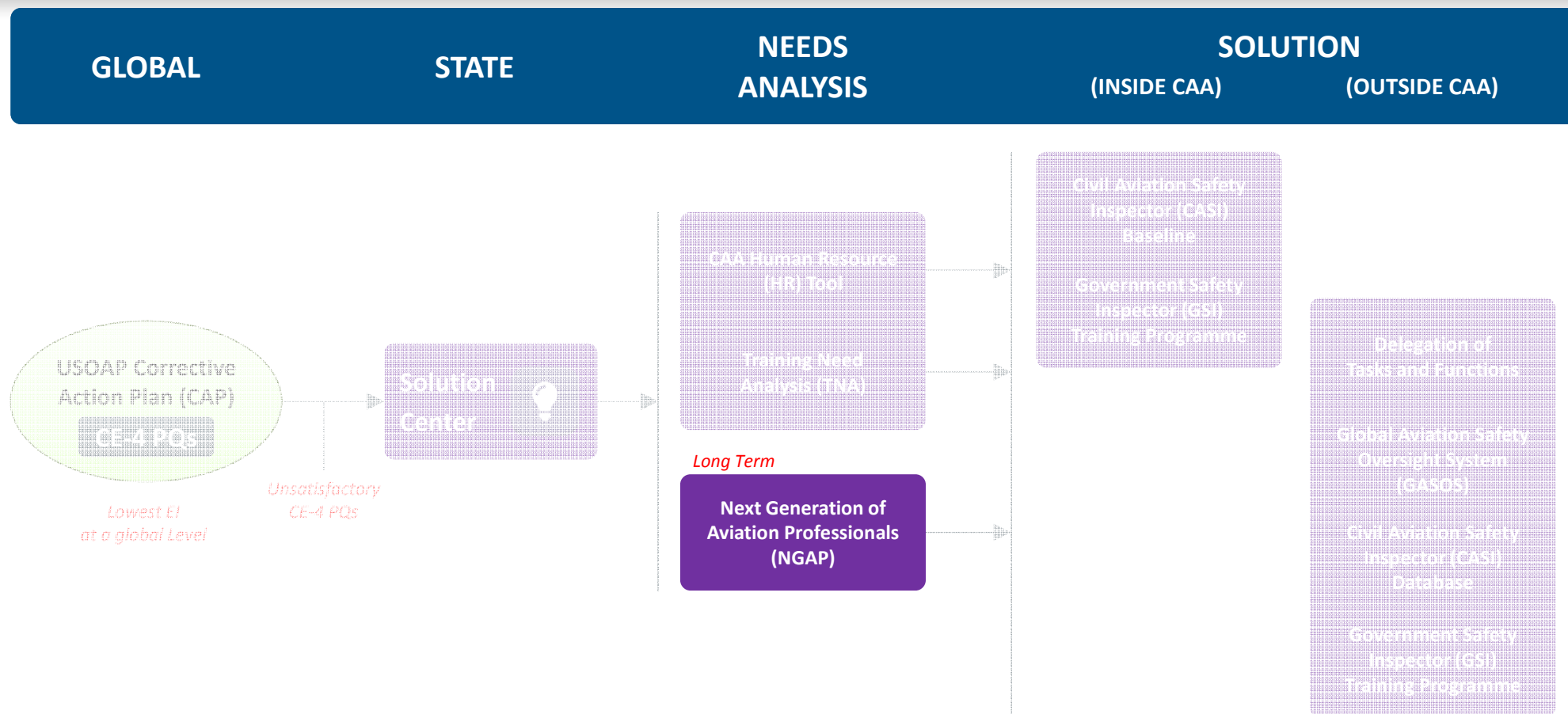
Welcome to ICAO's website on conducting effective Training Needs Analysis (TNA)! It provides aviation organizations working with ICAO with help identifying and addressing human performance improvement needs through training and development.

Login [Request an Account](#)

User name

Password

Designed to evaluate
the need for more training
(e.g. AIR, OPS, etc.)





Next Generation of Aviation Professionals (NGAP)

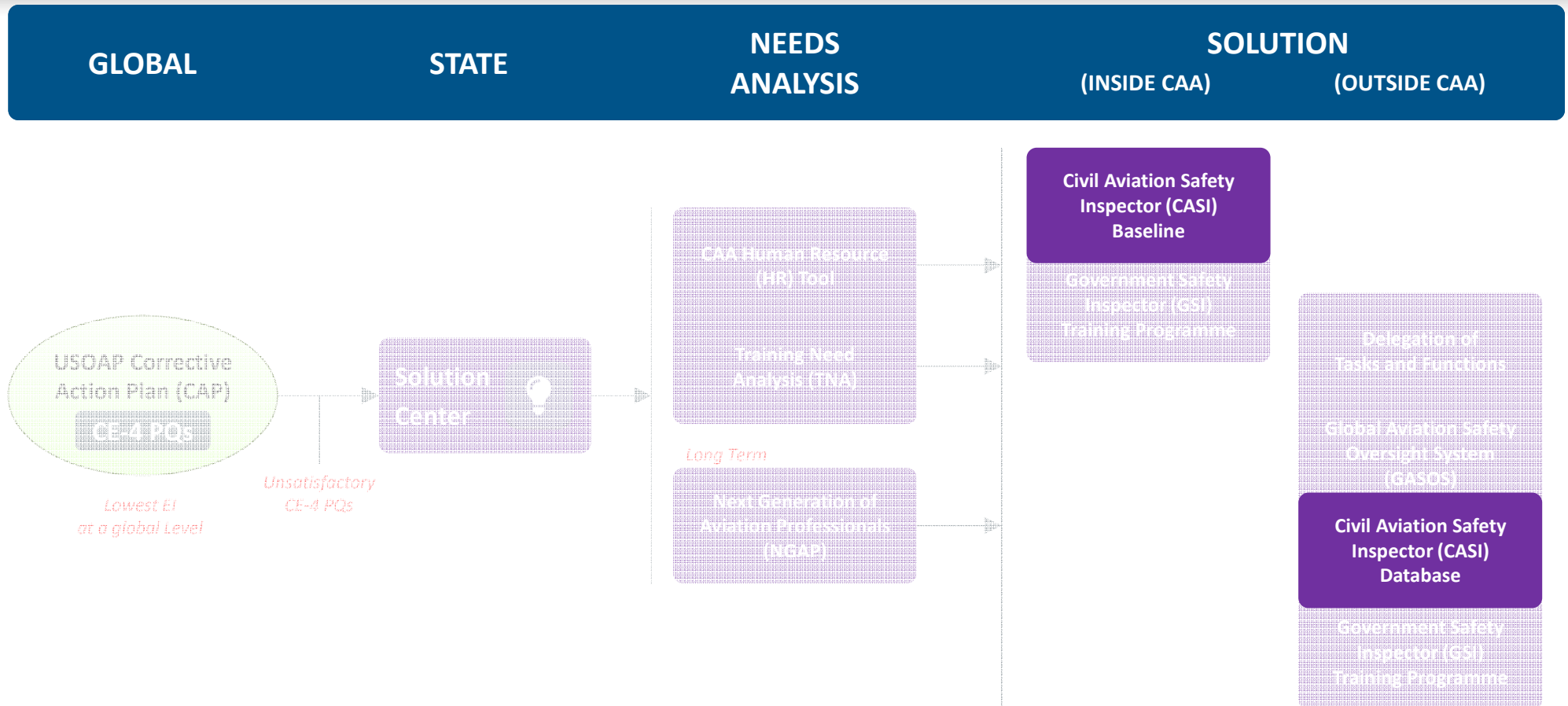
- **Description**

- Launched to ensure that **enough qualified and competent aviation professionals are available** to operate, manage and maintain the **future** international air transport system
- For example, Technical and Inspection Personnel

- **A long term solution for ensuring that CAAs can build capacity for the expected growth**

- But the work starts now







Civil Aviation Safety Inspector (CASI)

ICAO's baseline

MANDATORY

Inspector Application

- Personal information
- State Organization
- Discipline (AIG, AIR, ANS, OPS, PEL, etc.)
- Specialist Experience
- Work Experience / CV
- Supporting documents / certificates

CAA Validation

- Date of employment
- Registration of aircraft
- Signed documentation (AOC, CoA, etc.)

Other Endorsements

- By the industry
- By professional associations
- ...

ICAO Recognition Minimum Requirements

- Employment with aviation authority
- 5 years inspector experience with a current authority authorization or similar document
- English Proficiency / iHELPP
- Competencies check (Doc 10070)
- Completion of ICAO courses* :
 - GSI Course
 - USOAP CBT (LEG/ORG + Relevant Areas)
 - SMS Course
 - AIG
 - Train the Trainer
 - Etc.



Categorization

- Inspector
- Specialist Inspector





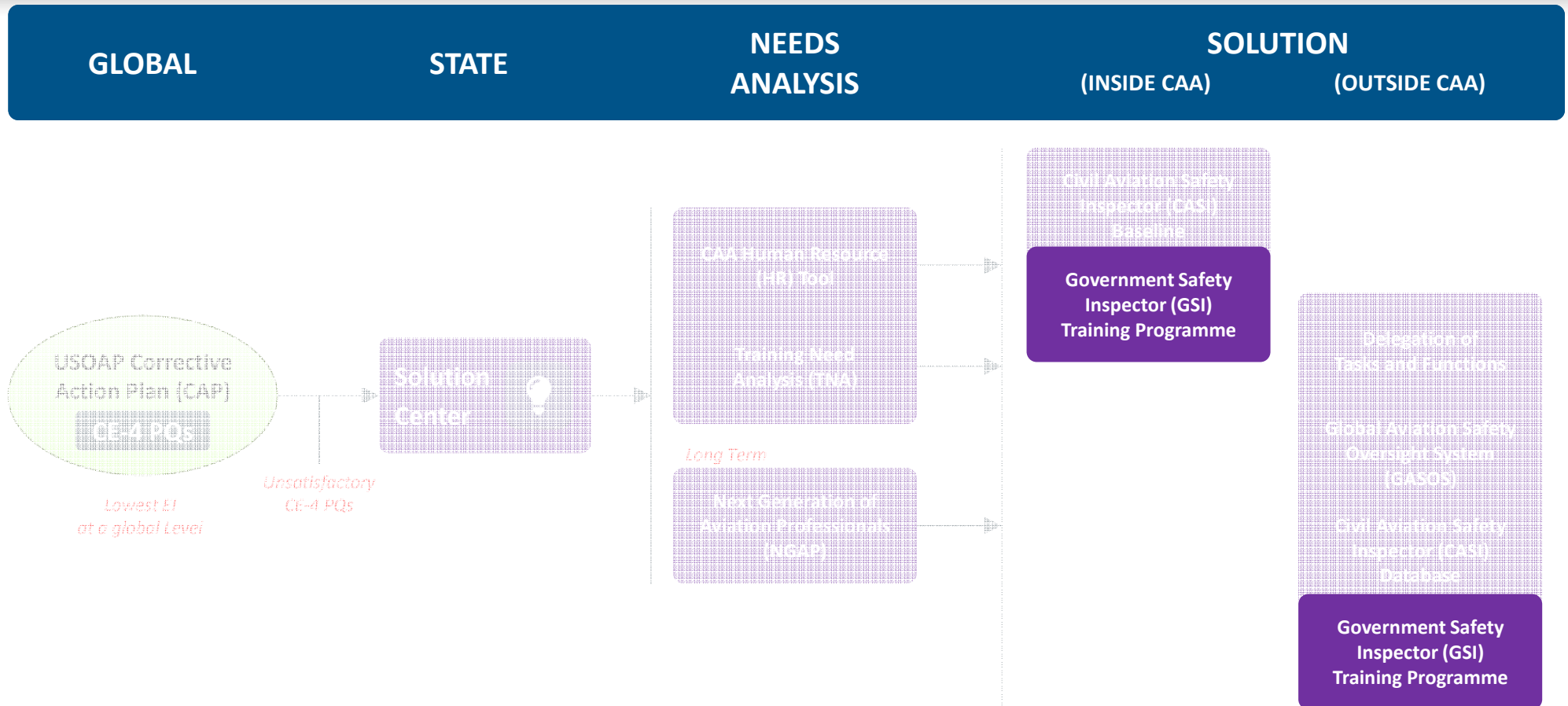
Civil Aviation Safety Inspector (CASI)

- **Creating a pool of highly-qualified and experienced inspectors capable of performing specific and specialized regulatory tasks.**
 - Training will include the relevant ICAO approved Government Safety Inspector (GSI) courses
 - Based on the competencies identified in Doc 10070 – *Manual on the competencies of civil aviation safety inspectors*
- **Providing Member States access to inspectors that can carryout specific job task or function on a temporary basis.**
- **Enabling Member States to satisfactorily perform their regulatory oversight functions.**



What is being done

- Secretariat is developing **guidance material** to facilitate a State's ability to delegate its functions and duties
- Creating a **database of highly-qualified and experienced inspectors** that are capable of performing specific, specialized tasks
- Creating an **ICAO baseline** for the CAA's inspectors competencies, including a "**career path**"





Government Safety Inspector (GSI) Training Programme

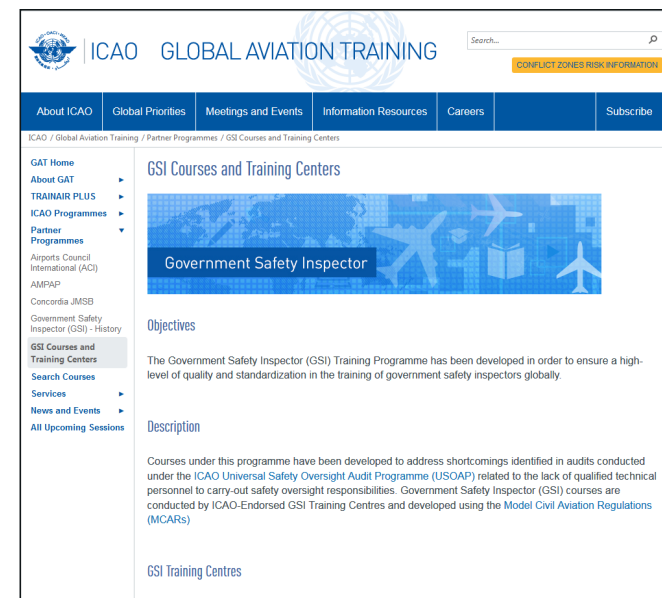
- **Objectives**

- ensure a high-level of quality and standardization in the training of government safety inspectors globally.

- **Description**

- Developed to address shortcomings identified under the USOAP audits (CE-4). GSI courses are conducted by ICAO-Endorsed GSI Training Centres and developed using the Model Civil Aviation Regulations (MCARs)

<https://www.icao.int/training/Pages/GSI%20Courses%20and%20centers.aspx>



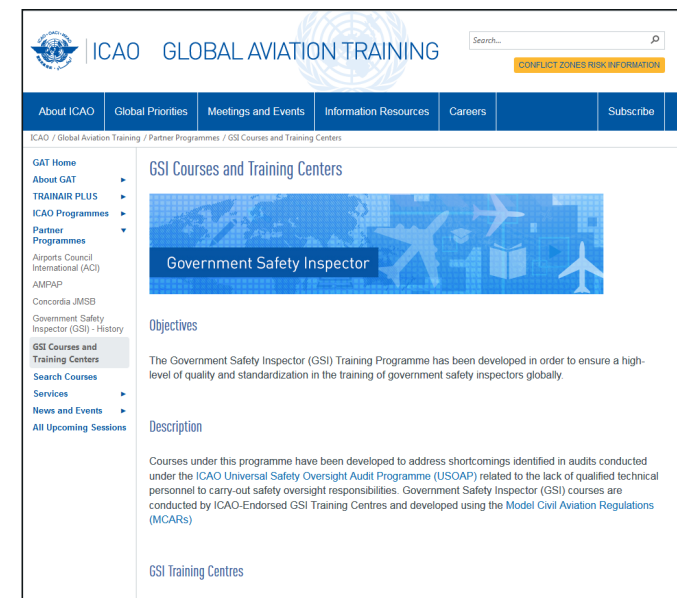


Government Safety Inspector (GSI) Training Programme

- **GSI Courses Available**

- Government Safety Inspector Operations- Air Operator Certification (**GSI-OPS**), Course 18700
- Government Safety Inspector Airworthiness- Air Operator and Approved Maintenance Organization Certification (**GSI-AIR**), Course 18701
- Government Safety Inspector Personnel- Personnel Licensing (**GSI-PEL**), Course 18710
- Expansion of courses covering **AGA & ANS** inspectors planned

<https://www.icao.int/training/Pages/GSI%20Courses%20and%20centers.aspx>



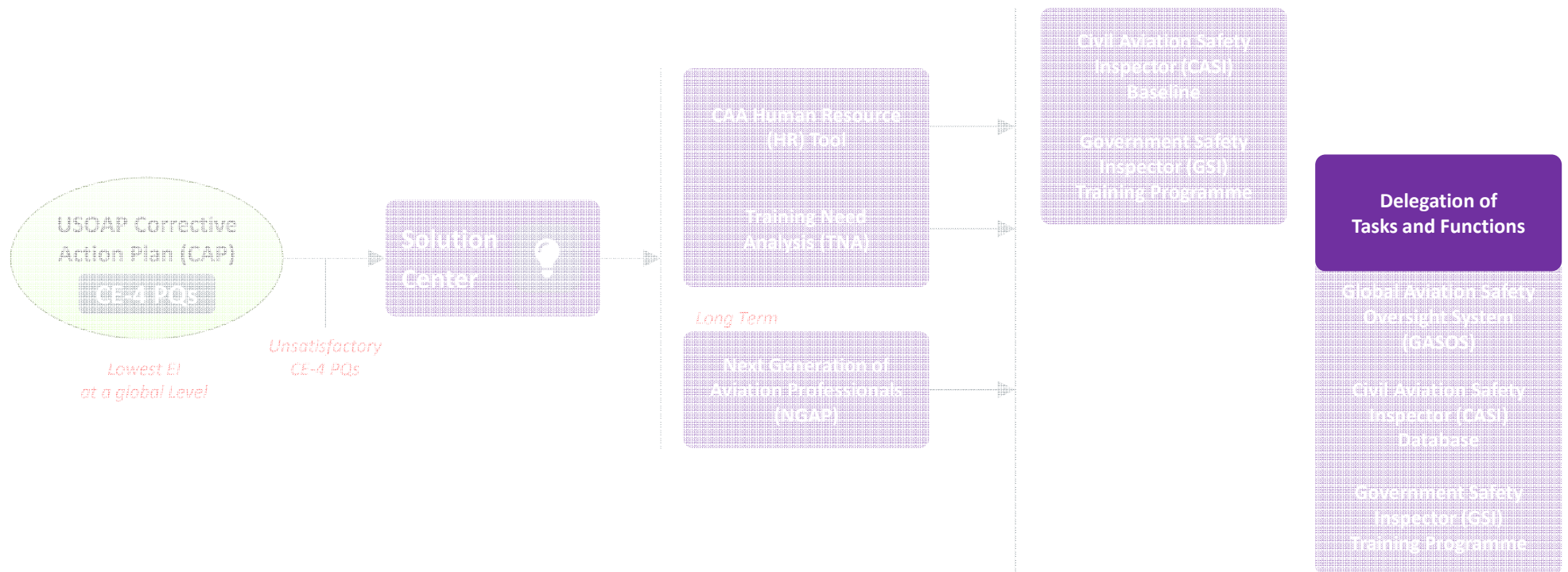


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Provisions on delegation of tasks & functions

- **Annex 19**
Safety Management (Forward)
- **Doc 9760**
Airworthiness Manual
- **Doc 9734B**
The Establishment and Management of a Regional Safety Oversight Organization

*“Execution, by an RSOO, of certain tasks and functions on behalf of its member States requires **delegation of authority** to the RSOO. Delegation of authority by a member State to its RSOO does not legally require the RSOO to be structured in a specific way and involves only the delegation of functions, not responsibilities. Under the Chicago Convention, safety oversight remains the responsibility of the State even if the associated tasks and functions are delegated to another entity”*



Enabling the process

States may need to delegate some of its tasks and functions.

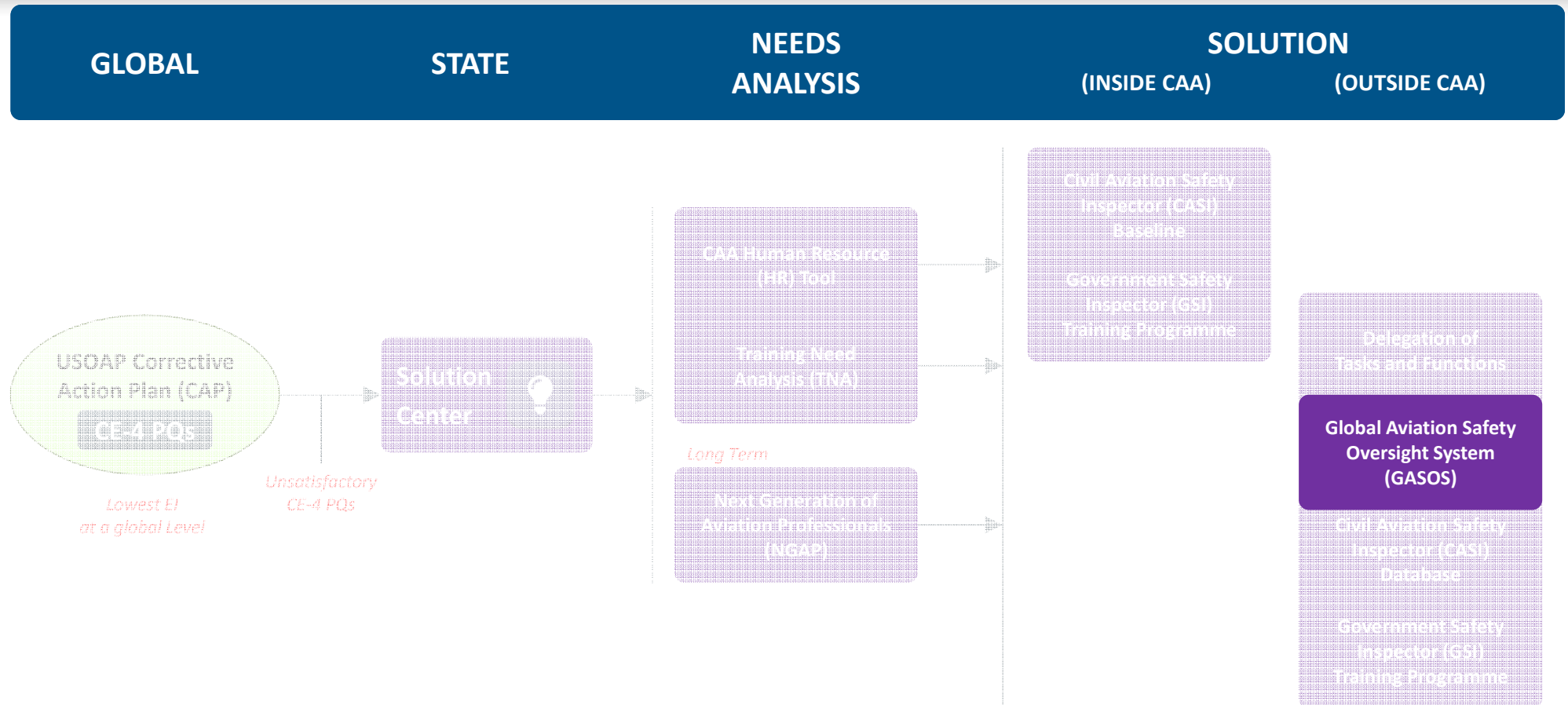
For this to happen, States must:

- have a regulatory framework in place
- identify the tasks and functions that can be delegated
- have requirements and procedures for the evaluation and engagement of an inspector
- have access to qualified inspectors



Delegation of Tasks & Functions

- ICAO is **developing guidance** to facilitate States in setting up legislation, regulatory framework and procedures required to accept technical assistance from other Member States, individuals or aviation entities.
- **These would include a delegation mechanism that would consider:**
 - The conduct of specific tasks and functions and making recommendations to the State without the issuance of certificates, licenses or approvals on behalf of the requesting State; or
 - the full delegation of tasks and functions including issuance of certificates, licenses or approvals on behalf of the requesting state.





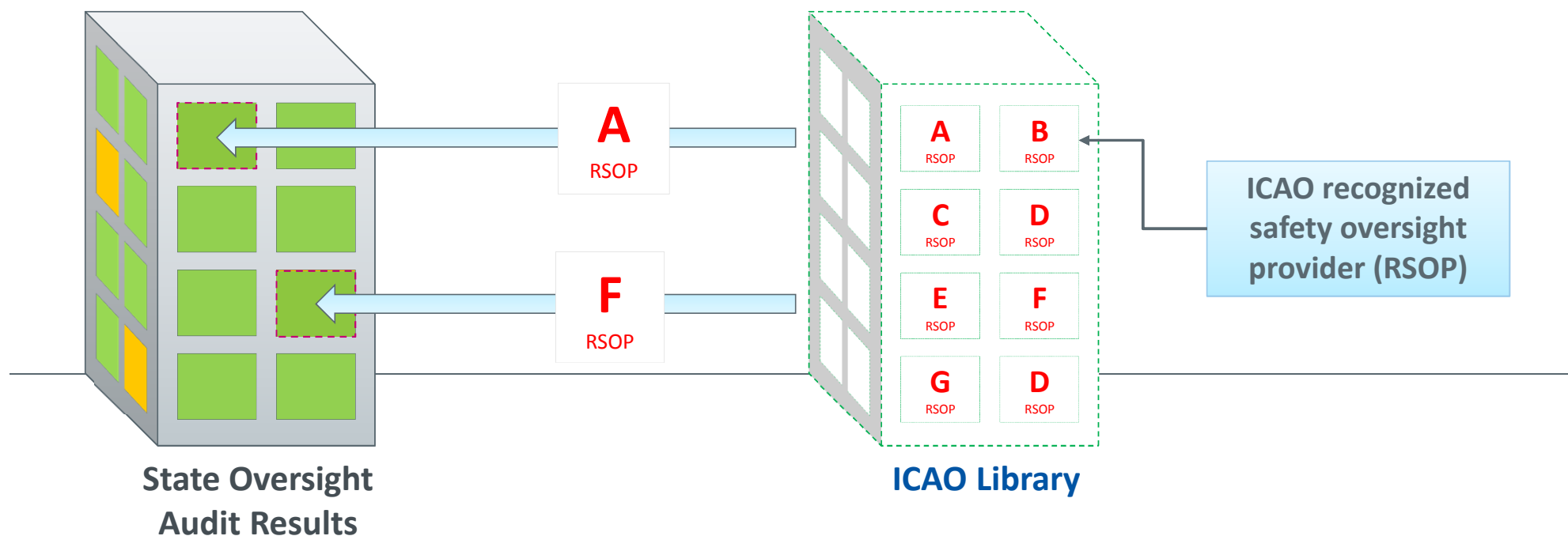
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Global Aviation Safety Oversight System (GASOS)

Concept endorsed by the:





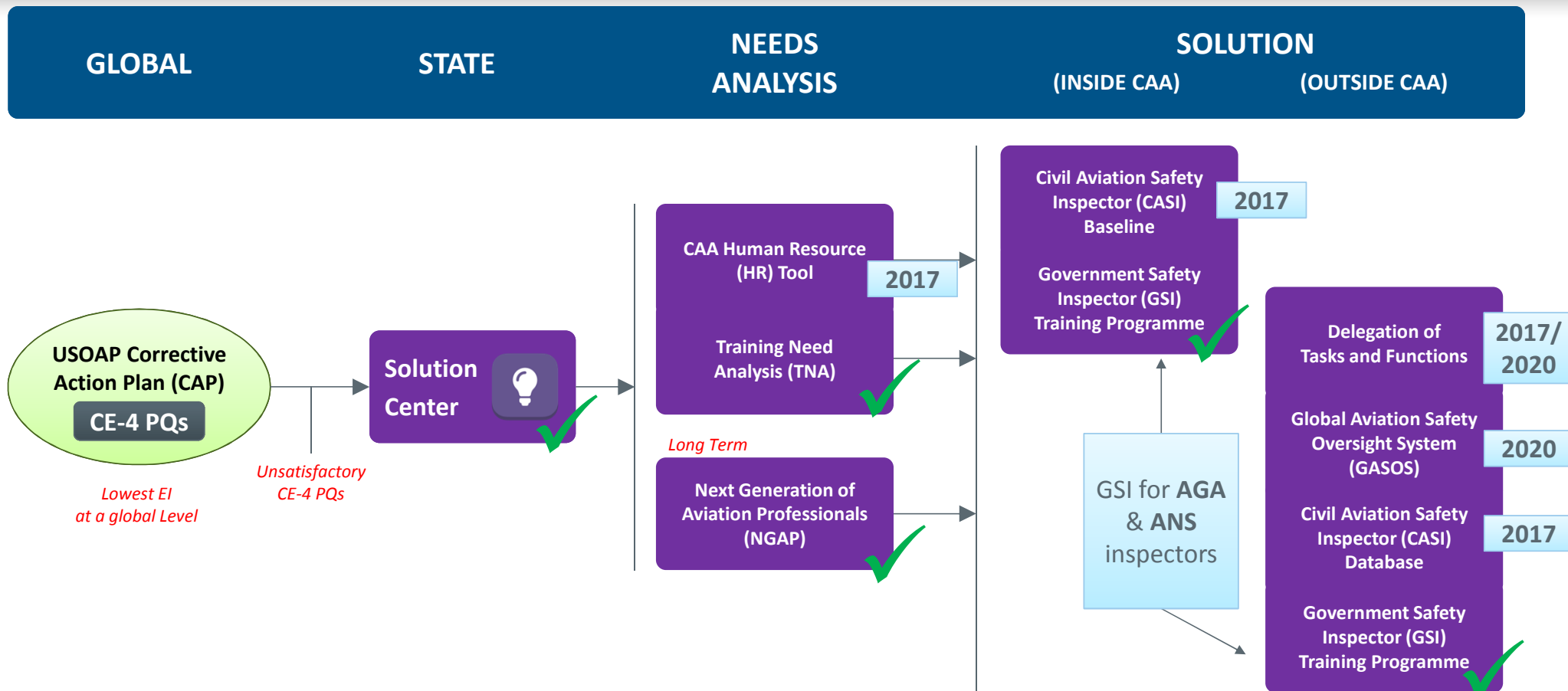
ICAO Recognition of Safety Oversight Provider

- Recognition would be granted in respect to the **specific tasks or functions** carried out by the **safety oversight provider**
- Each function and tasks would be **mapped to USOAP CMA Protocol Questions (PQ)**.
- Provider's functions would be classified in accordance with the **potential level of empowerment** granted by States.



ICAO Recognition of Safety Oversight Provider (continued)

- **The following three levels of delegation/ empowerment are defined based on the complexity of functions performed:**
 - **Level 1:** advisory functions.
 - **Level 2:** operational functions.
 - **Level 3:** certifying, licensing, and approving functions.





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iMPLEMENT

I-CAAT: ICAO's Civil Aviation Authority Tools

3LD

3-Letter
Designators

IHELPP

ICAO Home of the
English Language
Proficiency Programme

ARS

Aircraft Registry
System

TCOA

Aircraft Operator
Certificate (AOC)
Database

DRDB

Drone Registry
Database

CASI

Civil Aviation Safety
Inspector Database



UNDER DEVELOPMENT



State Safety Briefing



Solution Center



CAA HR Benchmark



Economic Dev. Indicators



Dashboards



Regional Safety Briefing



Approach Paths



Airport Briefing

www.icao.int/safety/ISTARS



Improvement of implementation process

- PCI, new section in Secretariat, aimed at improving the implementation process
- Project-oriented perspective enabling more transparency and providing a better decision-making tool
- Enhance the use of the Job Cards as a tracking tool
- Ongoing close coordination between ANC and Secretariat





Conclusions

- ICAO has developed tools to help States improve their safety oversight responsibilities and the resolution of safety deficiencies
 - Finding the right **solutions** for each State (Solution Center, GSI)
 - Evaluate **States' needs** (CAA HR Tool, TNA)
- Setup an ICAO baseline of competencies regarding CAA inspectors (CASI)
- Develop more guidance on **delegation** of tasks and functions
- Create a recognition mechanism (GASOS, CASI)
- Prepare for the future (NGAP)



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